

PCT0/534392

REC'D 10 FEB 2005

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**INTERNATIONAL PRELIMINARY EXAMINATION REPORT**  
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference BCS 02-5001-PCT	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/EP 03/12476	International filing date (day/month/year) 07.11.2003	Priority date (day/month/year) 08.11.2002
International Patent Classification (IPC) or both national classification and IPC A23L1/01		
Applicant BAYER BIOSCIENCE GMBH		

- This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 4 sheets, including this cover sheet.  
  
☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).  
 These annexes consist of a total of    sheets.

- This report contains indications relating to the following items:
  - ☒ Basis of the opinion
  - ☐ Priority
  - ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
  - ☐ Lack of unity of invention
  - ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
  - ☐ Certain documents cited
  - ☐ Certain defects in the international application
  - ☐ Certain observations on the international application

Date of submission of the demand  14.05.2004	Date of completion of this report  09.02.2005
Name and mailing address of the international preliminary examining authority:   European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer  Bilang, J  Telephone No. +49 89 2399-8707  

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP 03/12476

## I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

### Description, Pages

1-54 as originally filed

### Claims, Numbers

1-16 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

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**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Yes: Claims	1-16
	No: Claims	
Inventive step (IS)	Yes: Claims	7-9
	No: Claims	1-6,10-16
Industrial applicability (IA)	Yes: Claims	1-16
	No: Claims	

**2. Citations and explanations**

**see separate sheet**

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/EP 03/12476

1. The present application discloses a process for reducing the acrylamide content of heat-treated foods, comprising selecting plant material which has a reduced content of soluble sugars. More particularly, the application shows that by reducing the expression of the R1 gene in potato tubers potato chips can be obtained which have a reduced content of acrylamide.
2. The present application does not fulfill the requirements of Article 33(3) PCT, because the subject-matter of claims 1-6 and 10-16 is not based on an inventive activity.

It was known from the prior art that acrylamide is formed in the malliard reaction between amino acids and reducing sugars. One of the first proposals to reduce the content of acrylamide was to store potatoes in the dark and at more than 8°C ([www.swisstox.net](http://www.swisstox.net); [www.quasi.uni-kiel.de](http://www.quasi.uni-kiel.de)), which means that the cold-induced sweetening should be avoided. Moreover, the breeding of potato varieties having a reduced content of sugars and asparagine was already proposed ([www.quasi.uni-kiel.de](http://www.quasi.uni-kiel.de)).

It was thus obvious for the skilled person that by selecting plant material which has a reduced content of soluble sugars leads to a reduction in acrylamide in the heat treated foods.

3. The claims are not clear. It is not clear what "conventional" and apparently unconventional plants are compared.
4. Moreover, there are strong doubts that the claimed method, particularly the method of claims 7-9, can be reduced to practise over its entire range. It is entirely unclear whether the inhibition of the R1 gene in any plant other than potato would lead to the desired effect. It can be understood from the description that the important effect of the R1 gene is its function in cold-induced sweetening. It is not clear whether such an effect exists, for example, in maize or wheat.